

REMARKS

The Applicant requests that the Examiner reconsider the rejections set forth in the official action in the light of the foregoing amendments and the following remarks.

37 CFR 1.75: Claims 50 and 52

The Examiner objected to Claims 50 and 52 as being of improper dependent form. In making the objection the Examiner explained that Claims 50 and 52 as previously presented did not further limit the subject matter of the claim from which they depend, Claim 49.

Claim 50 has been amended to recite the specific composition set forth in Claim 49. It is believed that Claim 50 as now presented is in proper dependent form.

Claim 52 has been cancelled and, therefore, the objection in so far as it relates to Claim 52 is moot.

35 USC 112, Second Paragraph: Claims 6-15, 17, 23-31, 33, 40-46, and 49-52

The Examiner rejected Claims 6-15, 17, 23-31, 33, 40-46, and 49-52 because the Examiner concluded that those claims do not meet the requirements of the second paragraph of 35 USC 112. The Examiner presented the particulars of the grounds of the rejection for each rejected claim. The Applicant will respond to each ground in like manner.

Claim 6 - In rejecting Claim 6 the Examiner stated that it is “unclear how the ‘eclipsed’ configuration of the organic/layer fits within the ‘planar structure’ of the layered

inorganic/organic material as defined in claim 53 on which claim 6 indirectly depends.”

The term “eclipsed” is defined and the related material structure is described at page 8, lines 21-25, and shown in Figures 2 and 3 of the present application. As described in the specification and shown in Figures 2 and 3, the Applicant’s claimed material includes a plurality of layers that alternate with regard to their composition, i.e., organic material or inorganic material. For example, in Figure 2, one of the metal oxide layers is indicated by reference numeral “1” and one of the organic layers is indicated by reference numerals “2” and “A”. Moreover, the various layers repeat in a cycle or period. Thus, although the octahedra are in planar layers they can be eclipsed from layer to layer as shown in Figures 2 and 3. As described in the specification, the eclipsed configuration relates to the alignment of the molecules in the inorganic planes relative to the organic planes. Thus the term “eclipsed” in the context of the Applicant’s claimed layered inorganic-organic material is clearly defined for the person of ordinary skill in the art.

Claim 7 - In making the rejection of Claim 7, the Examiner stated that the component “A” in the composition formula is not defined. Claim 7 has been amended to include a definition for “A”. Written support for the amendment of Claim 7 is found at page 2, lines 8-12. Preferred embodiments of the component “A” are described at page 3, lines 12-13 and lines 16-19.

Claim 8 - In making the rejection of Claim 8, the Examiner stated that the phrase “inorganic oxide atomic plane” has no antecedent basis. Claim 8 has been amended to describe the structure of the claimed material with the indefinite article “a”.

Claim 9 - In making the rejection of Claim 9, the Examiner explained that Claim 9, like Claim 7, did not define the component “A” in the composition formula. Since Claim 9 depends directly from Claim 7, it is believed that the amendment of Claim 7 renders the rejection of Claim 9 moot.

Claim 10 - In explaining the rejection of Claim 10 the Examiner pointed out that there was no antecedent basis for the component “Z”. The Applicant acknowledges that the term “Z” was improperly presented in Claim 10. Claim 10 has been amended to replace “Z” with “A”, for which there is antecedent basis in Claim 7 on which Claim 10 depends indirectly.

Claim 11 - In explaining the rejection of Claim 11 the Examiner noted that there was no antecedent basis for the phrase “the terminal alkane units of A”. Claim 11 has been amended to include an antecedent reference to the terminal alkane units of the component “A”.

Claims 12-15 - Claims 12-15 were rejected for the same reasons as Claim 11 because they depend from Claim 11. It is believed that the amendment of Claim 11 renders the rejection of Claims 12-15 moot.

Claim 17 - In explaining the rejection of Claim 17, the Examiner indicated that the term “A” did not have proper antecedent basis. Claim 17 has been amended to remove the reference to the component “A”. The Applicant submits that the term “ $\alpha-\omega$ ” in front of the new chemical formula is standard terminology in the chemical field. As used in Claim 17, the term indicates that one NH₃ group is attached at the beginning of the alkane chain and the other is attached at the end of the alkane chain. Therefore, the

chemical formula now set forth in Claim 17 does not introduce any new matter.

Claim 23 - In making the rejection of Claim 23 the Examiner stated

[It is] unclear how the “staggered” configuration of the organic layer fits with the “planar structure” of the layered inorganic/organic material as defined in claim 53 on which claim 23 indirectly depends. If “planar structure” is intended to mean in thickness direction, it is required that ‘planar structure’ be clearly defined in the specification.

It is not clear from the Examiner’s explanation whether he is questioning the meaning of the term “staggered” or the meaning of the term “planar structure”. The term “staggered” is defined and the related material structure is described at page 8, lines 25-31, and shown in Figure 4 of the present application. As described in the specification, the staggered configuration relates to the alignment of the molecules in the inorganic planes relative to molecules in the organic planes. Thus, the term “staggered” in the context of the Applicant’s claimed layered inorganic-organic material is clearly defined for the person of ordinary skill in the art.

If the Examiner is unclear about the meaning of the term “planar structure”, then it is important to note that the term of significance is “periodic planar structure”. As described in the specification and shown in the drawings, particularly Figures 2, 3, and 4, the Applicant’s claimed material includes a plurality of layers that alternate with regard to their composition, i.e., organic material and inorganic material. For example, in Figure 4, one of the metal oxide layers is indicated by reference numeral “1” and one of the organic layers is indicated by reference numerals “2” and “A”. Moreover, the various layers repeat in a cycle or period. Thus, although the octahedra are in planar layers they can be staggered from layer to layer as shown in Figure 4.

Claims 24 and 26 - In making the rejection of Claims 24 and 26, the Examiner stated that the component "A" in the composition formula is not defined. Claim 24 has been amended to include a definition for "A". Written support for the amendment of Claim 24 is found at page 2, lines 8-12. Preferred embodiments of the component "A" are described at page 3, lines 12-13 and lines 16-19.

Claim 26 depends directly from Claim 24. Therefore, it includes all of the features of Claim 24. It is believed that this rejection of Claim 26 is rendered moot in view of the amendment of Claim 24.

Claims 24-31 - These claims were deemed to be indefinite solely because of their dependency on Claim 23. This rejection of Claims 24-31 is believed to be improper for at least the same reasons discussed above relative to Claim 23.

Claim 33 - The Examiner questioned the use of the parentheses in this claim. Claim 33 has been amended to remove the parentheses.

Claim 40 - In making the rejection of Claim 40, the Examiner indicated that the term "A-site" does not have clear antecedent basis. Claim 40 has been amended to replace the term "A-site" with the term "Z-site". Proper antecedent basis for the new term is found in Claim 38 from which Claim 40 depends indirectly through Claim 39.

Claim 41 - Claim 41 was deemed to be indefinite only because of its dependency on Claim 40. The rejection of Claim 41 on this basis is believed to be moot in view of the amendment of Claim 40.

Claim 42 - In making the rejection of Claim 42, the Examiner stated that the component “A” in the composition formula is not defined. Claim 42 has been amended to include a definition for “A”. Written support for the amendment of Claim 42 is found at page 2, lines 8-12. Preferred embodiments of the component “A” are described at page 3, lines 12-13 and lines 16-19.

Claims 43-46 - Claims 43-46 were deemed to be indefinite only because of their dependency from Claim 40 and Claim 41. The rejection of Claims 43-46 on this basis is believed to be moot in view of the amendment of Claim 40.

Claim 44 - The Examiner questioned the use of the parentheses in this claim. Claim 44 has been amended to remove the parentheses.

Claim 49 - In making the rejection of Claim 49, the Examiner noted (1) that the phrase “by dissolution of tungstic acid (when the metal is W) or molybdic acid (when the metal is Mo) ammonium solution” appears to be incomplete. The Examiner also indicated (2) that it is unclear how the reaction of W or Mo with hydrogen peroxide, which is recited in the claim, yields a nitrogen-containing structure. Further, the Examiner pointed out (3) that the term “A” in the chemical formula was not defined.

Regarding item (1), it is believed that the insertion of the term “in an” before “ammonium” in line 5 of Claim 49 corrects this error. Regarding item (2), Claim 49 has been amended to recite that the tungstate or molybdate complex is formed as a precursor for reaction with the ammonia solution. Written support for the additional description in Claim 49 can be found at page 8, lines 11-14. Regarding item (3), Claim 49 has been amended to include a description of the “A” component in the chemical

formula. Written support for this amendment of Claim 49 is found at page 2, lines 8-12. Preferred embodiments of the component "A" are described at page 3, lines 12-13 and lines 16-19.

Claim 50 - Claim 50 was deemed to be indefinite only because of its dependency from Claim 49. The rejection of Claim 50 on this basis is believed to be moot in view of the amendment of Claim 49.

For all of the foregoing reasons, it is believed that the rejection of Claims 6-15, 17, 23-31, 33, 40-46, and 49-52 is overcome. Accordingly, the rejection should be withdrawn.

Allowed Claims

In the official action the Examiner indicated that Claims 1-5, 16, 18-22, 32, 34-39, 47, 48, and 53-68 are allowed.

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CONCLUSION

It is believed that, upon entry of the foregoing amendments to the claims, all of the claims of this application are now in condition for allowance. Accordingly, the Applicant respectfully requests that the Examiner reconsider this application in the light of the foregoing amendments and remarks.

Respectfully submitted,

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